

What is claimed is:

1. A non-volatile semiconductor memory comprising:
a memory cell array having a plurality of non-volatile memory cells;

5 a decode circuit configured to decode address data as input thereto to select a memory cell of said memory cell array; and

a data sense circuit configured to sense and amplify data of the selected memory cell of said memory
10 cell array, wherein

said memory cell array includes an initial setup data region with initial setup data and status data programmed thereinto, said initial setup data being for determination of memory operating conditions, said status
15 data indicating whether said initial setup data region is presently normal in functionality.

2. The non-volatile semiconductor memory according to claim 1, wherein

said memory cell array has a redundant cell array
20 adapted to be used for replacement of a defective memory cell, said initial setup data including defect address data, and further comprising;

a defect address register configured to store therein said defect address data as read out of said
25 initial setup data region and transferred therefrom and to perform replacement control of said defective memory cell.

3. The non-volatile semiconductor memory according to claim 2, further comprising;

5 a data latch circuit associated with said decode circuit configured to set a row decoder corresponding to a defective row in an inactive state based on said defect address data as read out of said initial setup data region.

4. The non-volatile semiconductor memory according to claim 2, further comprising;

10 a data latch circuit associated with said data sense circuit configured to set a sense amplifier corresponding to a defective column in an inactive state based on said defect address data as read out of said initial setup data region.

15 5. The non-volatile semiconductor memory according to claim 2, wherein

said nonvolatile memory cells are electrically rewritable, said initial setup data including voltage data for designation of a voltage used for data writing and erasure of said memory cell array, and further comprising ;

20 a voltage setup register configured to store therein said voltage data as read out of said initial setup data region for execution of voltage control during data writing and erasing.

25 6. The non-volatile semiconductor memory according to claim 2, wherein said initial setup data includes chip

information data, and further comprising;

a chip information register configured to store therein said chip information data as read out of said initial setup data region.

5 7. A non-volatile semiconductor memory comprising:

a memory cell array having a plurality of non-volatile memory cells, said memory cell array having an initial setup data region with initial setup data and status data programmed thereinto, said initial setup data
10 being for determination of memory operating conditions, said status data indicating whether said initial setup data region is presently normal in functionality;

a decode circuit configured to decode input address data to select a memory cell of said memory cell array;

15 a data sense circuit configured to sense and amplify data of the selected memory cell of said memory cell array;

an operating condition setting circuit configured to store therein said initial setup data as read out of
20 said initial setup data region and transferred therefrom and to control memory operating conditions; and

a control circuit operatively responsive to receipt of said status data as read from said initial setup data region configured to control transfer of said initial
25 setup data toward said operating condition setting circuit.

8. The non-volatile semiconductor memory according

to claim 7, wherein

said memory cell array has a redundant cell array
used for replacement of a defective memory cell, said
initial setup data including defect address data, and
5 wherein

said operating condition setting circuit has a
defect address register configured to store therein said
defect address data read out of said initial setup data
region and sent therefrom and for performing control of
10 replacement of said defective memory cell.

9. The non-volatile semiconductor memory according
to claim 7, further comprising;

a data latch circuit associated with said decode
circuit configured to set a row decoder corresponding to
15 a defective row in an inactive state based on said defect
address data as read out of said initial setup data
region.

10. The non-volatile semiconductor memory
according to claim 8, further comprising;

20 a data latch circuit associated with said data
sense circuit configured to set a sense amplifier
corresponding to a defective column in an inactive state
based on said defect address data as read from said
initial setup data region.

25 11. The non-volatile semiconductor memory
according to claim 8, wherein

said non-volatile memory cells are electrically

rewritable, said initial setup data including voltage data for designation of a voltage used for data writing and erasure of said memory cell array, and wherein

said operating condition setting circuit has a
5 voltage setup register configured to store therein said voltage data as read and sent from said initial setup data region and to perform voltage control during data writing and erasing.

12. The non-volatile semiconductor memory
10 According to claim 8, wherein said initial setup data includes chip information data, and wherein

said operating condition setting circuit has a chip information register configured to store therein said chip information data as read and sent from said initial
15 setup data region.

13. The non-volatile semiconductor memory
according to claim 7, wherein

said initial setup data region has a first initial setup data block with initial setup data being programmed
20 thereinto and a second initial setup data block with initial setup data identical to the data of said first initial setup data block being programmed thereinto.

14. The non-volatile semiconductor memory
according to claim 13, wherein

25 in case said first initial setup data block is normal, said status data and said initial setup data are programmed into said first initial setup data block

whereas when said first initial setup data block is defective, said status data and initial setup data are programmed into said second initial setup data block.

15. The non-volatile semiconductor memory
5 according to claim 7, wherein

said initial setup data and said status data are each comprised of at least one set of data satisfying a complementary relationship therebetween.

16. The non-volatile semiconductor memory
10 according to claim 8, wherein

said initial setup data region comprises even-numbered pages defined as even-numbered bitlines range for allowing said status data along with defective column address data included in said defect address data to be
15 programmed thereinto, and odd-numbered pages defined as odd-numbered bitlines range for allowing defective row address data to be programmed thereinto.

17. The non-volatile semiconductor memory
according to claim 16, wherein
20 said even-numbered pages permit N (where "N" is a positive integer) sets of status data and N sets of defective column address data satisfying complementary relations respectively to be programmed thereinto, and wherein

25 said odd-numbered pages permit M (where "M" is a positive integer less than N) sets of defective row address data satisfying complementary relations

respectively to be programmed thereinto.

18. The non-volatile semiconductor memory according to claim 7, wherein

5 said control circuit becomes automatically operative upon detection of power activation for controlling reading of said initial setup data and also transferring such read data toward said operating condition setter circuit.

19. The non-volatile semiconductor memory according to claim 7, wherein

 said control circuit is responsive to input of a command for controlling reading of said initial setup data and also transferring such read data toward said operating condition setting circuit.

15 20. The non-volatile semiconductor memory according to claim 7, wherein

 said memory cell array comprises a NAND cell unit with a series connection of a plurality of electrically rewritable non-volatile memory cells.

20 21. The non-volatile semiconductor memory according to claim 20, wherein

 said initial setup data region comprises at least one cell block including a plurality of NAND cell units, the cell block being used as a unit for data erasure.

25 22. The non-volatile semiconductor memory according to claim 20, wherein

 said initial setup data and said status data are

programmed with an all "0" state in a single NAND cell unit and all "1" state in a single NAND cell unit, the all "0" state and all "1" state serving as one bit data, respectively.

5 23. A non-volatile semiconductor memory comprising:

 a memory cell array with non-volatile memory cells disposed therein, having an initial setup data region with a first and a second data block, said first data
10 block permitting initial setup data for determination of memory operating conditions to be programmed thereinto, said second data block allowing data identical to that of the first data block to be programmed thereinto, said initial setup data region storing status data as
15 programmed thereinto, said status data indicating whether said initial setup data region is presently normal in functionality;

 a decode circuit configured to decode input address data to select a memory cell of said memory cell array;
20 and

 a data sense circuit configured to sense and amplify the selected memory cell of said memory cell array.

 24. The non-volatile semiconductor memory
25 according to claim 23, wherein

 in case said first data block is normal, said status data and said initial setup data are programmed

into said first data block whereas when said first data block is defective, said status data and initial setup data are programmed into said second data block.

25. The non-volatile semiconductor memory
5 according to claim 23, wherein

said memory cell array has a redundant cell array adapted to be used for replacement of a defective memory cell, said initial setup data including defect address data, and further comprising;

10 a defect address register configured to store therein said defect address data as read out of said initial setup data region and transferred therefrom and for performing replacement control of said defective memory cell.

15 26. The non-volatile semiconductor memory according to claim 25, further comprising;

a data latch circuit associated with said decode circuit for setting a row decoder corresponding to a defective row in an inactive state based on the defect
20 address data as read out of said initial setup data region.

27. The non-volatile semiconductor memory according to claim 25, further comprising;

a data latch circuit associated with said data
25 sense circuit configured to set a sense amplifier corresponding to a defective column in an inactive state based on said defect address data as read from said

initial setup data region.

28. The non-volatile semiconductor memory according to claim 25, wherein

said non-volatile memory cells are electrically
5 rewritable, said initial setup data including voltage data for designation of a voltage used for data writing and erasure of said memory cell array, and further comprising;

a voltage setup register configured to store
10 therein said voltage data as read and sent from said initial setup data region for execution of voltage control during data writing and erasing.

29. The non-volatile semiconductor memory according to claim 25, wherein said initial setup data
15 includes chip information data, and further comprising;

a chip information register configured to store therein said chip information data as read and sent from said initial setup data region.

30. The non-volatile semiconductor memory
20 according to claim 23, wherein

said initial setup data and said status data are each comprised of at least one set of data satisfying a complementary relationship therebetween.

31. The non-volatile semiconductor memory
25 according to claim 25, wherein

said initial setup data region comprises an even-numbered pages defined as even-numbered bitlines range

for allowing said status data along with defective column address data included in said defect address data to be programmed thereinto and odd-numbered pages defined as odd-numbered bitlines range for letting defective row address be programmed thereinto.

32. The non-volatile semiconductor memory according to claim 31, wherein

said even-numbered pages permit N (where "N" is a positive integer) sets of status data and N sets of defective column address data satisfying complementary relations respectively to be programmed thereinto, and wherein

said odd-numbered pages permit M (where "M" is a positive integer less than N) sets of defective row address data satisfying complementary relations respectively to be programmed thereinto.

33. The non-volatile semiconductor memory according to claim 23, wherein

said memory cell array comprises a NAND cell unit with a series connection of a plurality of electrically rewritable non-volatile memory cells.

34. The non-volatile semiconductor memory according to claim 33, wherein

said initial setup data region comprises at least one cell block including a plurality of NAND cell units, said cell block being used as a unit for data erasure.

35. The non-volatile semiconductor memory

according to claim 33, wherein

said initial setup data and said status data are
programmed with an all "0" state in a single NAND cell
unit and all "1" state in a single NAND cell unit, the
5 all "0" state and all "1" state serving as 1-bit
data, respectively.